**The Core and MORE Instruction Checklist**

|  |  |
| --- | --- |
| **The CCSS Standard:** Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.  **The Envision Lesson:** 3-7: Exponents | |
| **EXPLICIT INSTRUCTION**  **I do it, We do it, Y’all do it, You do it** | **ENGAGEMENT**  **All Students Saying, Writing, Doing** |
| **PROACTIVE PLANNING** | **VOCABULARY WORDS** |
| This is an introduction lesson to exponents. Powers of 10 will be addressed more specifically in lessons 7-1 (Multiplying Decimals by 10, 100 or 1000) and 7-5 (Dividing Decimals by 10, 100, or 1,000).  The following questions should be considered for each part of the lesson:   * What are the predictable failures for this lesson? (conceptually and behaviorally)   + Repeated addition v. repeated multiplication * How will you prevent these failures?   + See margin notes on page 72A of the Teacher Edition   Materials:   * Linker cubes for groups * Computer connected to projector and logged into to SuccessNet for the video introduction * Decide which center activities you would like to use and either prepare materials or have links/technology to be available for students | Screen shot 2011-08-09 at 11.47.38 AM.png |
|  | |
| **ANTICIPATORY SET** (5 MINUTES) | |
| Write the following on the board and have students discuss in partners which, if any, the students already know:  ten squared  2x2x2x2  3^4 | * Choral Responses * Partner Responses * Written Responses * Random call on students (No hand raising) |
| **BUILDING A FOUNDATION** (5-10 MINUTES) | |
| *The Language of Math*: Vocabulary instruction   1. How will you explicitly teach new vocabulary?   -Teacher will explicitly define words, show vocabulary cards and discuss the definitions on the top of student edition page 73.  -“cubed” and “squared” can be found in the glossary and on the vocabulary cards (available on the wiki at <http://csdelemmathsupport.wikispaces.com/Math+VOCABULARY+cards>).  -Show a base-ten rod and use it to represent 10^1, compared to a base-ten flat (100) to represent 10^2 “ten-squared”, compared to a base-ten cube (1000) to represent 10^3 “ten-cubed”  -Have students chorally read the definitions multiple times. See <http://explicitinstruction.org/?page_id=317> for examples of explicit vocabulary instruction.   1. How will you provide multiple opportunities for vocabulary to be used in context?   -Write in math journal with own definitions (Frayer Model) | * Choral Responses (chant definitions) * Partner Responses * Written Responses (Frayer Model) * Random call on students (No hand raising) |
| **WHOLE GROUP INSTRUCTION: Concrete** (10-15 MINUTES) | |
| *Develop the Concept: Interactive Learning (Hands-on)*  Build “flats” or “cubes” with linker cubes and discuss how to write the array in exponential form.   * + Ex: working in small groups, build an array that is 2x2 cubes; build an array that is 4x4x4 cubes, (choose your numbers carefully as they will get really big, really fast!) | * Choral Responses * Partner Responses * Written Responses   + Paper   + Math Journal   + Individual Whiteboards   + Student page from the topic pouch * Random call on students (No hand raising) |
| **SCAFFOLDED INSTRUCTION: Representational** (15-20 MINUTES) | |
| *Develop the Concept: Visual*   * Show video for lesson introduction from SuccessNet. * Have students go back to the arrays that were made and write in expanded and exponential form (Ex: for an array that is 4x4x4 the students would write 4x4x4 and 4^3) * Move into more than 3 factors in the expanded form (Ex: 3x3x3x3x3 would be written 3^5) * See page 72B in the Teacher Edition * Work the *Guided Practice* problems on page 72 together | * Choral Responses * Partner Responses * Written Responses * Random call on students (No hand raising) |
| **INDEPENDENT PRACTICE: ABSTRACT (**15-20 MINUTES) | |
| *Independent Practice* and *Problem Solving*   * Struggling or slower students should complete half of the problems in the *Independent Practice* section on page 73 (could assign the odds or the evens) * All other students could be assigned all of the *Independent Practice* problems on page 73 * Students should complete the *Problem Solving* problems on page 73 either independently or in small groups/partners | * Choral Responses * Partner Responses * Written Responses * Random call on students (No hand raising) |
| **FORMATIVE ASSESSMENT** (5-10 MINUTES) | |
|  | |
| **CENTER ACTIVITIES** (15 - 45 MINUTES)  \*This part of the lesson is beneficial for providing engaging activities while the teacher works with small groups of students who need supplemental instruction. | |
| *Center Activities 3-7\* and 3-7\*\**  may be more accessible if students use a calculator to get the standard form of the number rather than calculate by hand.  Online activities are available at:  <http://classroom.jc-schools.net/basic/math-expon.html>  <http://www.ezschool.com/Games/Exponents.html>  <http://www.mathdork.com/games/asteroidsexp3/asteroidsexp3.html> | |
| **HOMEWORK** | |
|  | |